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Exploring system factors that influence community development in online settings

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Abstract This paper presents an exploration of the community experience in online settings where the development of a learning community was a key instructional aim. The inquiry used the Learning Community Development Model (Brook & Oliver, 2003) to guide the exploration of the community experience in online settings. The paper reports the findings of a multi-case study that sought to investigate system factors that influence the development of online communities of learning.

INTRODUCTION

Many scholars assert that the social phenomenon of community might be put to good use on the support of online learning (eg. Hiltz, 1998). This assertion is well supported by theories of learning that highlight the importance of social interactions in the construction of knowledge (eg. Bruner, 2001; Dewey, 1929; Vygotsky, 1978). Further support is found in the works of scholars who explore the community construct. These scholars posit that community is characterised by a willingness of members to seek new members, involve all participants and share knowledge and the results of their endeavours (Moore & Brooks, 2001). Benefits associated with community membership include an increase in intellectual capital (Stewart, 1997), an increase in social capital including the norms so reciprocity (Putnam, 2000) and the satisfaction obtained through membership (Lott & Lott, 1965). It has also been suggested that sense of community is characterised by a phenomenon of the whole being greater than the sum of its parts (Hawley, 1950). These characteristics afford members clear advantage over non member, but it remains unclear in what ways these characteristics might be purposefully developed in online settings (Bonk & Wisher, 2000). It is clear, however that the decision to join some communities and not others rests with the *will* of the individual (Tönnies, 1955). Factors that influence this decision remain unknown, although it is generally accepted that individuals seek community membership because it is beneficial for them to do so (McMillan, 1996).

While a definitive definition of community remains elusive (Puddifoot, 1996) several generally accepted characteristics have been identified. Community is distinct from family and society (Tönnies, 1955), it exists in a geographic and relational sense (Gusfield, 1975) including online settings (Surratt, 1998). It has been suggested that community is a sense rather than a tangible entity (Wiesenfeld, 1996). Sense of community exists in many forms including those associated with neighbourhoods, fraternities, sport and religion and an individual is likely to belong to more than one community at a time (Sarason, 1974). Sense of community has been represented as a four dimensional framework comprising the elements of membership, influence, fulfillment of needs and shared emotional connection (McMillan & Chavis, 1986). These elements might be present at varying levels in different community settings, although shared emotional connection is considered the definitive element of true community (McMillan, 1996). This model provides a useful mechanism for conceptualising the community construct, but does not indicate factors that might influence community development or in what ways the key elements of community might be purposefully developed.

The Learning Community Development Model

Following an expansive review of contemporary literature, Brook and Oliver (2003) developed The Learning Community Development Model (LCDM). The Model describes three components in the process of community development in online settings; those that exist prior to any instructor actions, identified as presage factors. Instructor actions, identified as process teaching and learning strategies and the various outcomes including sense of community, identified as the product. Figure 1 shows the three components of the LCDM.

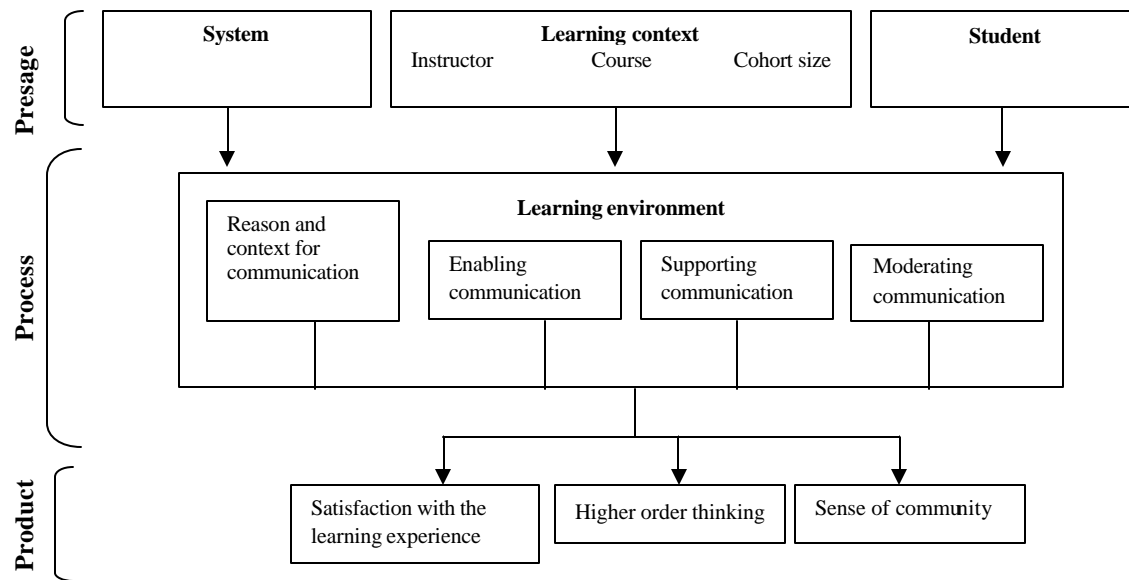


Figure 1 The Learning Community Development Model (Brook & Oliver, 2003)

Presage factors influencing community development

Presage factors are presented in three categories of system, learning context and student characteristics.

a. System factors System factors refer to factors at the institutional level that are likely to influence the conditions for community development. These factors include online policies and support, access to the learning management system and grading policies (Hiltz, 1994; Palloff & Pratt, 1999).

b. Learning context factors The learning context is broken into three sections referring to factors at the instructor, course and cohort levels that are likely to influence the conditions for community development. At the course level it has been suggested that academic level, subject orientation and discipline are likely to influence community development (Hiltz, 1998; Palloff & Pratt, 1999). Some researchers assert that at the instructor level factors associated with teaching experience, education philosophy, technical and management skills are central to online interactions (Collins & Berge, 1996) and are likely to influence community development. Other scholars assert that factors associated with cohort size are likely to influence the satisfaction derived from group activities (Allen, 2004) and, as a consequence, the community experience.

c. Student factors In addition, it is widely recognised that characteristics of participating students are likely to impact on both participation in the learning experience and the development of sense of community (eg. Lounsbury & DeNeui, 1996). Influencing student factors include the level of education and online experience (Hiltz, 1997), perceptions of self as either *connected* to or *separate* from others (Gilligan, 1982) and approaches to communication based on either a need for connection or status (Gougeon, 2002). Patterns of socialization, which tend to be gender based (Belenky, Clinchy, Golberger, & Tarule, 1986; Tannen, 1995) are also likely to impact on community development. It has been suggested that students adopting the socialized female role are more likely to engage in behaviours reflecting a sense of community than their socialized male counterparts. Culture, which governs underlying beliefs, values and how individuals act among people, is also likely to influence community development (Triandis, 1996).

While these assertions contributed to the development of the LCDM, it remains unclear in what ways they are likely to influence the community experience in online settings or if any of them might be considered mission critical in community development.

Process teaching and learning strategies that influence community development

Process factors in the LCDM describe the forms of engagement and activity employed by the instructor to promote community development. These are presented as: establishing a reason and context for communication, enabling communication, supporting communication and moderating communication.

a. Establishing a reason and context for communication Suggestions for establishing a reason and context for communication include mandated participation through the allocation of grades (Hiltz, 1998), providing an increase

in intellectual resources through guest experts (Hiltz, 1994), presenting a problem or disorientating dilemma (Moore & Brooks, 2001) and linking activities to the lived in world (Palloff & Pratt, 1999). Further impetus might be attained through setting complex ill-defined problems that reflect authentic activities (Herrington & Oliver, 1995), or presenting an onerous workload that encourages cooperative endeavour (Brook & Oliver 2003).

b. Enabling communication: In the online setting regular meetings critical to community development (eg. Tönnies, 1955) might be facilitated through technology tools such as discussion boards, chat facilities, e-mail or instant messaging (Isenhour, Carroll, Neale, Rosson, & Dunlap, 2000). It is important to remember however, that this technology does not by necessity prevent the use of other more traditional meeting methods such as face to face and telephone nor will it ensure community development (Hiltz, 1998). Communication might be enabled through requesting responses (Hiltz, 1994) or establishing a sense of positive outcome as a result of belonging (McMillan, 1996). Setting an appropriate pace and schedule for participation that maintains active engagement without dominating the experience might provide further support (Collison, Elbaum, Haavind, & Tinker, 2000).

c. Supporting communication Strategies suggested to support communication include assisting students in becoming proficient with the technology (Berge & Collins, 1995). Providing multiple means of access (Hill, 2000) also assists students in coping with technology as does normalizing problems and the appropriate use of humour (Brook & Oliver, 2003). Given the importance of non-verbal factors in communication (Dunn, 1999), which are to a large extent absent in text settings (Donath, n.d.), helping students communicate in written forms might support community development (Suler, 2000). There is also a need to prepare students for the possibility of both conflict and tension (Palloff & Pratt, 1999). Due to the more independent nature of the online learning setting there is a need to support students in managing their own learning experience including setting goals and prioritising tasks (Hill, 2000). Contemporary literature suggests the need to provide a safe environment where participants can express themselves free from shame (eg. McMillan, 1996). A sense of safety might be promoted through a code of conduct (McMillan, 1996), avoiding anonymity (Palloff & Pratt, 1999) and supporting an *electronic self* (Kim, 2000).

d. Moderating communication The tone established in online settings is a critical factor in moderating community development and a range of suggestions have been made including using a friendly, open and polite voice (Collison et al., 2000). Encouraging sharing is also an essential strategy in effective moderating. It has been suggested to progress sharing from safe to risky (McMillan, 1996) in order to build trust and progress the group through stages of group development (Salmon, 2000). The importance of developing a social presence and sense of place has been suggested (Stacey, 2002). Strategies suggested for developing a sense of place include incorporating human elements such as welcoming messages and acknowledging members individually (Hill & Raven, 2000).

It is believed that these strategies might act to promote a sense of community among learners in online settings.

Product

The final component of the LCDM describes the product of the interrelationship between presage factors and process teaching and learning strategies and includes, among other outcomes, sense of community.

The LCDM provides a useful framework for conceptualising community development, but raises questions regarding the ways in which each component influences community development. The presage component of the LCDM gives rise to the question:

What system factors influence community development in online courses seeking to establish a sense of community among learners?

METHODOLOGY

The context specific nature of the community experience (Sonn, Bishop, & Drew, 1999) and the desire to ensure congruence between the goals of the researcher and those of the practitioner (Reeves, 1999, 2000) influenced the methodology adopted for this study. To meet these goals a Grounded Theory (Strauss, 1987) approach was chosen allowing theory to be generated from close contact with the empirical world (Patton, 1990). In the tradition of Grounded Theory data collection strategies were embedded in the experiences, actions and behaviours of the actors involved. This was facilitated through a case study approach to the inquiry (Willig, 2001). This approach accounted for the context specific nature of the community experience providing for the generation of theory from the actions of expert practitioners and their students. A multi-case approach (Burns, 1996) involving multiple instances of community development was used. This allowed for refinement and further development of findings based on

multiple instance of the same phenomenon under different conditions (Willig, 2001). Five instrumental cases considered exemplar models (Willig, 2001), selected on replication logic (Burns, 1996) were chosen for this study.

Data collection

Data collection methods provided for *triangulation* (Willig, 2001) and the context specific nature of the community experience (Hill, 1996). To meet these conditions, it was necessary to adopt data collection mechanisms that allowed participants to describe their experience and allowed an objective interpretation of the community experience. Data collection methods selected included:

a. Interviews Interviews were used to account for the forms of engagement and activity employed by instructors to promote community development. Interviews were conducted in the early and latter stages of course delivery and were sensitive to the instructor's understanding and interpretation of community development (Willig, 2001).

b. Observations Potential incongruence between what the interviewee said and what actually happened was explored through an observational data collection strategy (Becker & Blanch, 1970). Observations were made of all participant online interactions throughout the various courses. To avoid the potential limitations of observations as a data collection strategy, a structured approach was utilised (Burns, 1996).

c. Questionnaire A demographic questionnaire was employed to collect data on individual characteristics that appeared likely to influence community development including cultural influence, communication patterns and perceptions of self as connected or separate. Participating students were asked to complete the questionnaire at the beginning of the various courses. In addition, students were asked to respond to open ended questions that explored their community experience.

RESULTS

The reporting of each case study begins with an overview of the course including presage factors that appeared to influence community development. Emergent trends in the data are reported. The paper concludes with a presentation of presage factors that emerged as supports or limitations in community development across the five courses.

Case Study 1: Alexander's course

Introduction In his course, Alexander delivered a teaching and learning skills program for instructors working in the university setting. The course operated over a five week period, included 27 participating students and was delivered in the online setting with one face to face meeting scheduled at the beginning of the course.

Presage factors seen to influence community development At the system level, there was limited technical support to ensure the availability of the learning management system (LMS), as a consequence the LMS was unavailable for lengthy periods due to technical difficulties. At the context level, there was little evidence of training to prepare the instructor for the nuances of online instruction. Also evident, was the absence of a clearly articulated assessment schedule. Alexander, as a novice instructor, experienced difficulties in the application of appropriate pedagogic practices in the online setting resulting in an excessive pace of learning activities. Student factors that appeared to restrict engagement included attitudes of perfectionism, a reluctance to meet time requirements and a heterogeneous cohort. An overview of the conditions seen to influence community development in this setting is presented in Table 1. A positive or negative symbol is used to describe an instance where predominant factors were seen to be either positive or negative.

Table 1 Conditions influencing community development

Instructor	Presage factors				
	System	Learning context			Student
		Instructor	Course	Cohort	
Alexander	-	-	-	+	-

Table 1 shows that pre-existing conditions in Alexander's course, many of which are managed at the system level, were predominantly unsupportive of community development.

Case study 2: Philip's course

Introduction: The course in which Philip participated was an undergraduate program for students learning how to teach in online settings. The course operated over a 12 week period, included 12 students and was delivered exclusively in the online setting.

Presage factors seen to influence community development: Students in Philip's course cited competition for high grades as a factor that suppressed their willingness to engage in knowledge sharing activities. At the context level Philip, as a practised instructor, had pre-existing pedagogic beliefs that limited his participation in learning activities, a factor that suppressed students enthusiasm for engaging in this setting. In line with these same pedagogic beliefs, Philip restricted the use of computer mediated communication (CMC) technologies to those available through the LMS, a factor that suppressed the communication of many students. The course was well supported by a planned outline providing a learning framework and cohort size was easily managed. At the student level, there appeared to be the presence of individuals who were not inclined to engage in collaborative activity, although the majority of students were experienced in online learning. In addition, there were notable difference between the student expectation of roles and responsibilities and actualities, specifically in the area of instructor participation, which served to frustrate some students. An overview of the conditions seen to influence community development in this setting is presented in Table 2 indicating those factors of a presage nature that influenced community development.

Table 2 Conditions influencing community development

Instructor	Presage factors				Student
	System	Learning context			
		Instructor	Course	Cohort	
Philip	-	-	+	+	-

Table 2 shows that once again, many factors managed at the system level appeared to not to support conditions supportive of community development.

Case study 3: Cathleen's course

Introduction: Cathleen was the instructor in a post graduate program for professional teachers studying special education. The course operated over a 12 week period, included 44 students and was delivered exclusively in the online setting.

Presage factors seen to influence community development: In this setting several presage factors were seen to present limitations to community development. Many students were aggrieved that technical problems were not resolved quickly and expressed feelings of frustration and annoyance. Issues associated with technical problems were compounded by the minimal resources made available to the instructor, minimal instructor training in the use of online technologies and a poor instructor technical skill set. It was common for students to experience delayed access to online interactions as a consequence of poor internal communication systems, contributing to feelings of isolation. The minimal resources provided to the instructor resulted in the reluctance of the instructor to engage in discursive activity as an active group member. Individual students appeared unprepared to share knowledge in what they perceived to be a competitive learning setting. Course design was well supported by a clearly articulated course outline. Student's inexperience in learning in online settings left them ill prepared for the learning experience including the time required to engage as an online learner. Individual students were reluctant to engage in collaborative activity and as a consequence did not display sharing behaviours. An overview of the conditions seen to influence community development in this setting is presented in Table 3 indicating those factors of a presage nature that were supportive or limiting of community development.

Table 3 Conditions influencing community development

Instructor	Presage factors				
	System	Learning context			Student
		Instructor	Course	Cohort	
Cathleen	-	-	+	+	-

Table 3 shows that many presage factors in this setting, many of which were managed at the system level, appeared to be unsupportive of community development.

Case study 4: Jim's course

Introduction: Jim taught a postgraduate education program for students studying the principles of online instruction. The course operated over a 12 week period, included nine students and was delivered exclusively in the online setting.

Presage factors seen to influence community development: There were a number of system factors seen to influence conditions for community development in this setting. These included limited technical support for instructors and students and poor institution communication systems that appeared to contribute to delayed student access to the learning setting. In addition, system factors promoted a competitive setting resulting in some individuals being reluctant to share knowledge. The security system was complex contributing to delayed online interactions for some students. The instructor was well experienced in the role of online teaching and learning and possessed comprehensive skills in technical systems and teaching. At the cohort level the number of enrolments was low but not excessively so and at the student level there were several individuals who appeared unwilling to engage in collaborative activity. An overview of the conditions seen to influence community development in this setting is presented in Table 4.

Table 4 Conditions influencing community development

Instructor	Presage factors				
	System	Learning context			Student
		Instructor	Course	Cohort	
Jim	-	+	+	+	-

Table 4 reveals that presage factors in Jim's course were reasonable supportive of community development, but many factors managed at the system level appeared to suppress conditions supportive of community development.

Case study 5: Elaine's course

Introduction: Elaine presented a professional development program for registered training authorities (RTO's) working in the field of vocation education and training (VET) in principles of online teaching. The course was intended to operate over a six month period with an initial active component of five weeks and included seven students. The course was delivered in the online setting with one face to face meeting scheduled for the end of the initial five week period. The course did not progress beyond the initial five week period.

Presage factors seen to influence community development: The absence of student participation in Elaine's course was noticeable. While this is likely to be the result of a combination of factors the instructor noted that the obvious competition between participation served to suppress knowledge sharing. The instructor's apparent lack of preparation for course delivery is also likely to be the result of multiple factors, one of which appeared to be that course delivery was additional to her usual workload. Other factors that appeared to be influential in the low level of preparation evident in this setting include the absence of a course outline, an inexperienced instructor with little training for the role of online instructor and limited experience in the application of appropriate pedagogic practices. These factors appeared to contribute to the absence of a recognised course design. An extremely small cohort comprising students with a preference for the pursuit of individual goals and an apparent unwillingness to undertake the leadership role further complicated course delivery. An overview of the conditions seen to influence community development in this setting is presented in Table 5.

Table 5 Conditions influencing community development

Instructor	Presage factors				
	System	Learning context			Student
		Instructor	Course	Cohort	
Elaine	-	-	-	-	-

Table 5 shows that Elaine's course was characterised by system factors that were largely unsupportive of community development.

CONCLUSION

The Learning Community Development Model identifies a number of important presage factors, which can influence community development. In this study, each of these factors was explored in five different online courses

and a number of consistent findings emerged. It appears that many pre-existing factors associated with course delivery serve to limit the prospects of instructors successfully developing conditions that support community development. The elements that emerged from the study to limit community development are presented in Table 6.

Table 6 Presage factors and elements that were observed to limit community development

Presage Factor	Element
System	<ul style="list-style-type: none"> • Institution communication processes • Online security systems • System availability • CMC tools • Assessment policies • Inappropriate models for calculating instructor workload
Learning context (Instructor)	<ul style="list-style-type: none"> • Instructor technical skills set • Instructor moderating skill set • Instructor pedagogic skill set
Learning context (Course)	<ul style="list-style-type: none"> • Course design • Learner supports • Assessment schedule
Learning context (Cohort size)	<ul style="list-style-type: none"> • Small cohorts • Large cohorts
Student	<ul style="list-style-type: none"> • Student willingness to engage in collaborative activity • Students with high achievement expectations • Student willingness to accept divergence in roles • Student willingness to allocate appropriate time to their study • Student willingness to undertake roles central to community development • Group heterogeneity

This inquiry found a number of presage factors, managed at the system level, that suppress conditions needed for community development. While it is generally accepted that the social phenomenon of community might be put to good use in the support of learning, it appears that many institution process and procedures limit the instructor's capacity to promote community development in online settings.

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